

BEFORE THE
PUBLIC SERVICE COMMISSION OF WISCONSIN

Quadrennial Planning Process Phase II

Docket No. 5-FE-100

**COMMENTS OF THE CITIZENS ENERGY TASK FORCE
TO COMMISSION'S NOTICE OF INVESTIGATION REGARDING QUADRENNIAL PLANNING PROCESS II**

Citizens Energy Task Force (CETF) appreciates the opportunity to provide input regarding the Quadrennial Planning Process generally, and the specific goals, priorities and measurable targets related to the Focus on Energy Program. These comments will address not only some of the questions posed but also decisions made in the first quadrennial planning process that should be revisited.

Phase 1, 2): Should the energy efficiency and renewable resource programs address longer term market changes in addition to short-term goal achievement? If yes, what is the appropriate balance between short-term achievement and longer term market changes.

CETF agrees that both short and longer term market change goals should be considered. Our comments will focus on benefits of a micro-grid, and the need to better consider externalities and carbon reduction in energy policy.

Grid reliability concerns have made grid security a national imperative, whether the concern is based on the threat of cyber or terrorist attack, increases in severe weather or solar flares, human error or interruption by vegetation or wildlife. A comprehensive, three-year Department of Defense (DoD) and Federal Emergency Management Agency study, *Brittle Power: Energy Strategy for National Security*,¹ concluded that relying on massive, complex, and interconnected infrastructures to transmit and deliver power from centralized generation creates unavoidable, and costly, vulnerabilities.

¹ See, Amory Lovins and Hunter Lovins, 1981. *Brittle Power: Energy Strategy for National Security*, U.S. Department of Defense, Civil Defense Preparedness Agency, available at www.rmi.org/

The study further concluded that centralized energy facilities create tempting targets for terrorists because they are clearly visible and terrorists would need to attack only a few, poorly guarded facilities to cause large, catastrophic power outages. In a complementary study, *Energy Security in a Dangerous World*², the International Energy Agency reaches the same conclusion.

Conversely resilient, decentralized systems are less likely to collapse in the face of natural or manmade disruptions and will limit damage when disruptions occur. In India's July 2011 rolling black-out, many of India's corporations and industrial groups were spared much of the blackout disruption because they generate their own power, which is often referred to as "distributed generation." A 2007 US Department of Energy (DOE) study, *The Potential Benefits of Distributed Generation and Rate-Related Issues that May Impede Their Expansion*³ also provides compelling evidence of how a distributed network of smaller sources was able to adjust to problems without causing major consequences. Decentralized (local) systems also reduced the magnitude and duration of failures.

These types of decentralized systems, or micro-grids, rely heavily on energy efficiency and local renewables, which are the heart of the Focus on Energy (FOE) program. Expanding the mission of the program to address our ultimate need for a more reliable and resilient system seems both prudent and necessary. Massachusetts is one example of a state beginning to invest in microgrids to ensure better reliability, resiliency and protection of their ratepayers based on this. Relying upon utilities heavily invested in a centralized structure has obvious issues.

² *Energy Security in a Dangerous World*, available online:
<http://www.worldenergyoutlook.org/media/weowebiste/2008-1994/WEO2004.pdf>

³ *The Potential Benefits of Distributed Generation and Rate-Related Issues that May Impede Their Expansion* available online at http://energy.gov/sites/prod/files/oeprod/DocumentsandMedia/1817_Report_-final.pdf

We need to also acknowledge the causes and account for the cost of black-outs, which has been estimated at \$80 - \$188 billion per year (Source: Dr. Massoud Amin, Dir., Technology Leadership Institute, Univ. of MN), and we have yet to address the unknown but likely massive burden of protecting transformers and substations from attack.

CETF is not claiming to have the answers as to how to address market transformation to a less decentralized grid or the capturing of fossil fuel related costs through the Focus on Energy program, which will be discussed next. Perhaps the total annual budget would vary based on comparing an equal investment to costs of infrastructure that perpetuate a centralized grid. Perhaps the off-set project costs can be captured in an avoided cost analysis. The most appropriate and holistic approach would seem to be a societal cost analysis, where all of the costs and benefits are accounted for.

CETF also recognizes that changes in how utilities receive revenue should accompany the potential for the Focus on Energy program to be the conduit for market transformation, so that there is incentive to implement demand side management and local generation.

A similar discussion is whether increased use of Focus on Energy measures can reduce short and long-term externalities of fossil fuel generated electricity. According to a 2005 study, *Hidden Costs of Energy: Unpriced Consequences of Energy Production and Use*⁴, the 2005 non-climate related cost for coal generated electricity in the US was \$62 billion (\$.032/kilowatt-hour). The costs were primarily health damages from air pollution, and did not take into account damages from climate change, harm to ecosystems, effects of some air pollutants such as mercury, and risks to national security.

The 2005 U.S. climate-related damages were estimated to be between \$0.01-.10/kilowatt-hour, and the increase in storm related damage will have substantially increased this cost as well, costs that are not currently accounted for in either our electric rates or in Focus on Energy funding.

⁴ *Hidden Costs of Energy: Unpriced Consequences of Energy Production and Use*, available online at <http://www.aaec.arkansas.gov/Solutions/Documents/Hidden%20Costs%20of%20Energy%20Unpriced%20Consequences%20of%20Energy%20Production%20and%20Use.pdf>

In our neighboring state, the Minnesota Public Utility Commission (MPUC) is considering updating the externalities on energy that are currently incorporated in decision making, which has also driven more aggressive mandates for efficiency and renewables.

In January, 2014, economics professor Stephen Polasky, who was asked to analyze the health and environmental costs of generating electricity, released data calculating the external costs of producing electricity from coal at \$2.2 billion — significantly higher than the \$58 million to \$257 million calculated using the current PUC values.

It merits note that a market transformation to microgrids would decrease these externalities, since they rely strongly on demand side management and renewables. Inclusion of the avoided cost of externalities on a kilowatt hour basis to the value delivered by FOE measures is an easy short-term measure. Also, as in the previous discussion, a societal analysis fully accounting for costs and benefits seems most appropriate. And, as with the discussion of how Focus on Energy can be used as a mechanism to forward a microgrid, there is also the ability to include these costs in weighing potential new infrastructure against an equal increase in Focus on Energy as an alternative.

How should statewide energy efficiency and customer-sited renewable resource goals be established? And Phase 2: How should they be evaluated?

The above discussion on utilizing FOE measures that enables market transformation is relevant to developing goals for efficiency and customer-sited renewables. Developing goals and measures that address carbon reductions based on a cost per ton assessment is an option, as is developing avoided-cost savings for reduced externalities. Fully capturing costs and benefits in a societal measure, again, seems most appropriate, and should be done because the societal costs and benefits are real.

Accounting for the avoided-costs and benefits of a decentralized grid will not be as straightforward as fossil fuel externalities, but the comparison to infrastructure costs for a centralized infrastructure is a beginning point. Comparison of FOE measures to such infrastructure should be holistic, focusing on energy and demand savings along with carbon reduction. The analysis should also compare the impact to Wisconsin ratepayers for the projected life of the infrastructure against the implementation of efficiency, load management and local renewables for the same time period.

Demand savings should also be given focus, since it can greatly reduce ratepayer costs for avoidable infrastructure. However, the financial incentives provided by MISO and the varying ways that utilities can use demand response would need to be taken into account to ensure that the measures are being used in the best way possible for Wisconsin ratepayers and that the financial incentive does not become too rich. This will be complicated since demand response resources can be included in both annual and day-ahead planning.

Should water efficiency measures, and their associated energy savings, be incorporated into the Focus on Energy program and addressed in this docket? If yes, which issues should be addressed? Potential issues include:

It is important to begin to address water efficiency and conserving of this important resource but it should not reduce FOE spending for energy savings. NERC has long considered the potential for water shortages in its reliability planning, and zero liquid discharge (ZLD) is often incorporated into generator plans – the dependence of generation on water resources, and the precariousness of this link, cannot be underestimated. Capturing the use of water for varying sources of generation could potentially be an area where the two programs overlap. Addressing specific water issues in our state associated with frac sand mining, and by use, to fracking, would be particularly prudent.

Feel free to provide any additional comments that you believe are important to the issue

Electrical cooperatives systems are currently able to develop and run their own self-directed programs. With cooperatives moving into the arena of wholesale energy marketing through ownership of regional transmission lines and applying to FERC for incentives provided to public utilities, this independence should be re-evaluated so as to avoid granting cooperatives rights without having reciprocal expectations.

It also relevant that if an electrical cooperative is allowed to count load management against in satisfying the requirements of a self-directed program, that this resource should be considered amongst the higher level energy priorities in determination of alternatives to infrastructure requiring a CPCN.

Again, thank you for the opportunity to comment on the future of this important program.

Respectfully submitted on this 14th day of March, 2014

By: /s/

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